

## REMARKS

This Paper, Request for Continued Examination, and accompanying Petition for a one-month Extension of Time are submitted in response to the Advisory Action mailed August 10, 2005 and in further response to the Final Office Action dated May 9, 2005. This paper is filed within one month after the three-month shortened statutory response period for the Final Office Action, which expired on August 9, 2005. The Commissioner is hereby authorized to charge any additional fees to Deposit Account number 02-1818

Claims 3-7, 9-18, 20, 22-23, 25-26, 28, 39-45, and 61-62 are pending in this application.

Independent claims 18 and 39 have been amended. Support for claims 18 and 39 may be found at p. 3 lines 15-18, p. 6 line 14-23, p. 6 line 30 through p. 7 line 4, and Figure 1.

Claims 3-7, 9-18, 20, 22-23, 25-26, 28, 39-45, and 61-62 were rejected under 35 U.S.C. §112 1<sup>st</sup> paragraph as the term "DSC melting point lower than about 100°C" was alleged to be not supported by the specification. This term has been amended to recite "DSC melting point of about 100°C" and is supported at page 6 line 30 through page 7 line 4 of the specification as one of ordinary skill in the art would recognize that the DSC melting point of Dow AFFINITY® PL 1880 is about 100°C. See the two material datasheets set forth at Tab 1 indicating the melting point of AFFINITY® PL 1880 as 100°C and 99°C. Applicants respectfully submit that these amendments do not narrow the scope of the claims or surrender any claimed subject matter. In view of the foregoing, Applicants respectfully request that the §112 rejections be withdrawn.

Claims 4-7, 9-18, 20, 22-23, 25-26, 28, 39-45, and 61 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,361,843 to *Smith et al. (Smith)*. Claims 4-7, 9-10, 14-18, 20, 22-23, 25-26, 28, 39-41, and 61 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,610,392 to *Ramesh et al. (Ramesh)*. Claims 11-13 and 42-45 were rejected under 35 U.S.C. §103(a) as being obvious over *Ramesh* in view of U.S. Patent No. 4,487,885 to *Adur et al. (Adur)*. Claims 3 and 62 were rejected under 35 U.S.C. §103(a) as being obvious over *Smith* in view of U.S. Patent No. 5,695,840 to *Mueller (Mueller)*. Claims 3 and 62 were rejected under 35 U.S.C. §103(a) as being obvious over *Ramesh* in view of *Mueller*. Applicants respectfully traverse and disagree with these rejections.

*Smith* teaches away from a first exterior layer attached directly to a second exterior layer with a sole tie layer in contact with the first and second exterior layers as recited in the present claims. *Smith* discloses a polymeric structure having five layers: a solution contact layer (II), a core layer (I), an outer layer (III), a tie layer between layers II and I, and a tie layer between layers I and III. *Smith*, col. 2 line 65 through col. 3 line, FIG. 1. *Smith's* core layer I lies

between the solution contact layer (II) and the outer layer (III) thereby preventing a sole tie layer to contact both exterior layers. *Smith* further requires two tie layers—a tie layer between layers II and I, and a tie layer between layers I and III. As *Smith* discloses a multilayered structure with a core layer disposed between two exterior layers, the core layer being attached to the exterior layers with two tie layers, *Smith* teaches away from a first exterior layer attached directly to a second exterior layer with a sole tie layer in contact with the first and second exterior layers as recited in the present claims.

*Ramesh* likewise teaches away from a first exterior layer attached directly to a second exterior layer with a sole tie layer in contact with the first and second layers as recited in the present claims. *Ramesh* discloses a multilayer film having at least four layers: outer layer A, inner layer B, inner layer C, and outer layer D. *Ramesh*, col. 2 lines 38-49, see also col. 21 lines 17-25. As inner layers B and C lie between outer layers A and D, *Ramesh* teaches away from a first exterior layer attached directly to a second exterior layer with a sole tie layer in contact with the first and second exterior layers as recited in the present claims.

*Adur* and *Mueller* each fail to fulfill the deficiencies of *Smith* and/or *Ramesh*. *Adur* merely discloses adhesive blends and fails to teach or suggest a film having an exterior layer composed of an ethylene and  $\alpha$ -olefin copolymer having a density of less than about 0.905 g/cc as recited in the claims. Indeed, *Mueller* further teaches away from the present claims as *Mueller* discloses a five-layered film with an inner core layer disposed between the exterior layers, the inner core layer preventing a sole tie layer from contacting and directly attaching the exterior layers to each other as recited in the present claims. *Mueller*, col. 6 lines 4-9, FIG. 1.

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 3-7, 9-18, 20, 22-23, 25-26, 28, 39-45, and 61-62 are in a condition for allowance and respectfully request an early notice of the same.

Respectfully submitted,

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## Blown Film Resin



**Dow Plastics**

# AFFINITY\* PL 1880

## Polyolefin Plastomer for Sealants in Multilayer Packaging

- Low seal initiation temperature
- Excellent hot tack strength
- High performance sealant layer in flexible packaging
- Complies with U.S. FDA 21 CFR 177.1520 (c) 3.2a.  
Consult the regulations for complete details.

AFFINITY PL 1880 Polyolefin Plastomer (POP) sealants in Multilayer Packaging is produced via INSITE\* Technology from Dow Plastics<sup>†</sup>. It is an ethylene alpha-

olefin resin designed for use in a variety of demanding packaging applications, including high-speed, form-fill-seal packaging. This resin offers excellent ultimate hot tack

strength and low temperature seal initiation, even through contamination in the package.

Physical Properties	Test Method	Values <sup>(1)</sup> English (SI)
<b>Resin Properties</b>		
Melt Index, g/10 min	ASTM D 1238	1.0
Density, g/cc	ASTM D 792	0.9020
DSC Melting Point, °F (°C)	Dow Method	210 (99)
Vicat Softening Point, °F (°C)	ASTM D 1525	187 (86)
<b>Film Properties, 2.0 mil (50 µm)</b>		
Puncture Resistance, ft·lbf/in. <sup>3</sup> (J/cm <sup>3</sup> )	Dow Method	270 (22)
Energy, in·lbf (J)		78 (8.6)
Force, lbf (N)		20.8 (94)
Dart Impact (Method B), g	ASTM D 1709	>830
Elmendorf Tear <sup>(2)</sup> , g	MD	550
	CD	720
Tensile Yield, psi (MPa)	MD	1050 (7.2)
	CD	1000 (6.9)
Ultimate Tensile, psi (MPa)	MD	8500 (58.6)
	CD	6480 (44.7)
Ultimate Elongation, %	MD	620
	CD	630
Tensile Modulus, 2% Secant, psi (MPa)	MD	13300 (91.7)
	CD	13400 (92.4)
Clarity	ASTM D 1746	83
Gloss, 20°	ASTM D 2457	141
Haze, %	ASTM D 1003	1.1
Seal Initiation Temperature <sup>(3)(4)</sup> , °F (°C)	Dow Method	185 (85)

### Fabrication Conditions For Blown Film:

- Screw Size: 2.5 in. (63.5 mm); 24:1 L/D
- Screw Type: SFDM
- Die Gap: 70 mil (1.8 mm)
- Melt Temperature: 408°F (209°C)
- Output: 6 lb/hr/in. of die circumference
- Die Diameter: 6 in.
- Blow-Up Ratio: 2.5:1
- Screw Speed: 50 rpm
- Frost Line Height: 25 in. (635 mm)

- (1) Typical values, not to be construed as specifications. Users should confirm results by their own tests.
- (2) Modified rectangular test specimen.
- (3) Temperature at which 2 lb/in. (8.8 N/25.4 mm) heat seal strength is achieved.
- (4) Heat Seal Strengths, Topwave HT Tester 0.5 S dwell, 40 psi bar pressure, pull speed 10 in./min (250 mm/sec).

\*Trademark of The Dow Chemical Company

-See "Handling Considerations" attached

<sup>†</sup>Dow Plastics, a business group of The Dow Chemical Company and its subsidiaries.

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# AFFINITY PL 1880

## Polyolefin Plastomer for Sealants in Multilayer Packaging

Melt Index:	1.0
Density:	0.902

AFFINITY\* PL 1880 is a polyolefin plastomer (POP) produced using INSITE\* Technology from Dow Plastics<sup>1</sup>. It is specifically designed for use as a sealant layer in flexible structures for the packaging of meat and cheese, dry foods and con-

sumer goods. Due to its excellent sealability at low temperatures, ultimate hot tack strength, optical properties and abuse resistance, it is particularly suitable for high speed form-fill-seal packaging machines.

### Note

AFFINITY PL 1880 should comply with FDA regulation 21 CFR 177.1520 and with

most European food contact regulations when used unmodified and processed according to good manufacturing practices for food contact applications.

Please contact your nearest Dow office regarding food contact compliance statements.

The purchaser remains responsible for determining whether the use complies with all relevant regulations.

Physical Properties <sup>(1)</sup>	Unit	Test Method	Value
Melt index, 190 °C/2.16 kg	g/10min	ISO 1133	1.0
Density	g/cm <sup>3</sup>	ASTM D-792	0.902
Melting point	°C	DSC	100
Vicat softening point	°C	ISO 306 (method A/120)	87
Film Properties, 50 µ thickness <sup>(1,2)</sup>	Unit	Test Method	Value
Dart impact, method A	g	ASTM D-1709	>830
Puncture resistance		Dow Method	
Energy	J		2.1
Force	N		35
Elmendorf tear strength	g	ASTM D-1922	
MD			355
CD			500
Yield tensile strength	MPa	ASTM D-882	
MD			5.0
CD			4.9
Ultimate tensile strength	MPa	ASTM D-882	
MD			49
CD			26
Ultimate elongation	%	ASTM D-882	
MD			570
CD			560
Tensile modulus, 2% secant	MPa	ASTM D-882	
MD			64
CD			64
Optical properties			
Gloss 20°	units	ASTM D-2457	129
Haze	%	ASTM D-1003	1.1
Seal initiation temperature <sup>(3)</sup>	°C	Dow Method	85

(1) Typical properties; not to be construed as specification limits

(2) Monolayer blown film extruded at 209 °C, BUR 2.5:1, 1.8 mm die gap

(3) Temperature required to reach 5.25 N/15mm heat seal strength; data representative of a PA/tie/sealant coex film structure

## Safety Considerations

Material Safety Data Sheets for Dow Polyolefin Plastomers are available from the Dow sales office to help customers further satisfy their own safe handling and disposal needs. Such information should be requested from the supplier(s) of any product(s) prior to working with it (them).

The comments that follow are pertinent only to the resins discussed, as supplied. Various additives and processing aids used in fabrication will have their own safe use profile and must be investigated separately.

### Health and Safety

Polyolefin Plastomers are among the most inert commercial polymers and constitute no hazard in normal handling from skin contact or ingestion. For "Regulated" uses, such as food contact, your Dow sales representative can obtain compliance letters for specific resins. Normal good housekeeping practice should be followed. Workers should be protected from possibility of skin or eye contact with molten polymer. Safety glasses are suggested as a minimal precaution to prevent possible mechanical or thermal injury to the eyes. Fabrication areas should be ventilated to carry away fumes or vapours; workers should be assured of a supply of fresh air. Work place environments should be kept clean and free of dust.

### Combustibility

Polyolefin Plastomers will burn when supplied with adequate amounts of heat and oxygen. They should be handled and stored away from contact with direct flames and/or other ignition sources. In burning, Polyolefin Plastomers contribute high heat and may generate a dense black smoke. Fires can be extinguished by conventional means with water fog preferred. In enclosed areas, fire fighters should be provided with self-contained breathing apparatus.

### Recycling

Polyolefin Plastomers can be recycled. Production rejects, and/or conversion waste should preferably be recycled instead of being disposed of.

### Disposal

In disposal of any wastes, be certain all applicable national and local regulations are met. If these regulations are met, the following is applicable for the Polyolefin Plastomers as supplied. If fillers, processing aids or other materials have been added, their possible influence on handling and disposal should be judged separately.

Polyolefin Plastomers can be disposed of either by incineration or landfill. With properly controlled industrial, commercial or municipal incineration, particulate or gaseous discharge into the air can be maintained within allowable levels. Thermoplastic products such as Polyolefin Plastomers have high heat values and should be incinerated only in units designed to handle high heats of combustion. In landfill, Polyolefin Plastomers are inert, do not degrade quickly, form a strong and permanent soil base, and evolve no gases or leachates known to pollute water resources.

### Customer Notice

Dow encourages its customers to review their application of Dow products from the standpoint of human health and environmental quality.

To help ensure that products are not used in ways for which they are not intended or tested, Dow personnel will assist customers in dealing with ecological and product safety considerations. Your Dow sales representative can arrange the proper contacts.

**Notice:** The information and data contained herein do not constitute sales specifications. The product properties may be changed without notice. No liability, warranty or guarantee of product performance is created by this document. It is the Buyer's responsibility to determine whether Dow products are appropriate for Buyer's use and to ensure that Buyer's workplace and disposal practices are in compliance with applicable laws and regulations. No freedom from any patents or other industrial or intellectual property rights is granted or to be inferred. (March 1997)



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